billion in interLATA retail revenue is likely to exceed the extra $1.05 billion profit from increased access minutes. For the ranking to be reversed, two things would have to hold: (a) typical IXC costs of providing interLATA services would have to be high relative to revenues; *and* (b) the BOCs' cost of providing interLATA retail services would have to be not significantly lower than those of a typical IXC. Condition (a) contradicts claims of certain BOC experts (such as Professor MacAvoy) that IXCs earn enormous profits; condition (b) contradicts BOC claims that their entry would realize substantial economies of scope from joint provision of local and interLATA services. Thus, if the BOCs' increased profit hinged primarily on expanded access usage, the implied conditions would undermine other BOC arguments for the great benefits that their interLATA entry would deliver. However, I believe that, even today, profit from BOC interLATA entry would come mainly from interLATA retail revenues. More importantly, looking ahead the profit contribution from BOC interLaTA retail revenues is likely to outweigh considerably the additional profit from expanded access minutes. This is because the FCC's Access Charge Reform Order will reduce usage sensitive (i.e., per minute) access charges substantially over the coming years.[26]

74. The key point in stressing that the bulk of BOC interLATA profits are likely to come from retail revenues rather than from increased access minutes is this: an increase in BOCs' share of interLATA revenues might be achieved largely by *diverting* output away from IXCs *not by expanding industry output*. Therefore, it need not hinge on reducing industry price significantly; and hence a BOC may not have strong incentives to cut interLATA prices.[27]

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billion.

[26] For example, see the May 8, 1997, presentation of Professor Joseph Farrell, at that time Chief Economist at the Commission. Average usage-sensitive charges affected by the Order were predicted to fall from 2.8 cents per minute at each end of an interstate call to approximately 1.2 cents per minute at the terminating and approximately 1.4 cents per minute at the originating end by January 1, 1999.

[27] Indeed, if a BOC could capture a sufficient share of the interLATA market without cutting price, it would seek a higher price than prevailing today. This follows from the earlier discussion showing that an integrated monopolist's preferred long-distance price exceeds the current average interLATA price.

2. Disrupting an Allegedly Non-Competitive InterLATA Oligopoly

75. The extent of price reductions (if any) following BOC entry will depend on the competitive interactions in the interLATA market. One view offered by Bell affiants is that IXC's are tacitly colluding to some degree. This view has been espoused repeatedly by Professor Paul MacAvoy. The hypothesis of perfect collusion is inconsistent with estimates of long-distance demand elasticity of 0.7, that is, significantly less than 1; as noted previously, a perfect cartel in such case would have raised price in order to increase revenue and profit. However, assuming for the sake of argument that IXCs are engaging in imperfect tacit collusion, it is not obvious why the addition of one player should destroy such collusion. An alternative outcome is that IXCs would choose to accommodate the BOC. Indeed, there is evidence that the BOCs would like to avoid a price war, including the fact that BellSouth has announced that its prices will be at least 5% below AT&T's, but has not promised the 15-20% price cuts that Professor Hausman predicts.[28]

76. Dr. Crandall and Professor Waverman, while not claiming that IXCs are colluding, argue that much of IXCs' currently high margins are being dissipated by wasteful non-price competition such as advertising, and that BOC entry would reduce margins and therefore also the incentive to engage in wasteful non-price competition. Putting aside the question of just how much of the non-price expenditures are truly wasteful as opposed to valuable to consumers, it is again not obvious why adding a competitor would so drastically alter the nature of competition.[29]

77. I am not suggesting that BOC entry will yield no price reductions. I expect price reductions, and said so in my affidavit. However, the analytical basis for expecting *dramatic* reductions is weak, and I therefore believe that any price reductions would be considerably more modest than projected by some BOC experts such as Professors Hausman or MacAvoy.

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[28] Brief in Support of Application by BellSouth for Provision of In-Region InterLATA Services in South Carolina, September 30, 1997, at 4, 78.

[29] Indeed, conceivably even more would be spent on advertising and other forms of non-price competition in order to "be heard" above the increased noise.

B. Other Reasons Why Estimates of Gains From BOC Entry Are Inflated

78. Professor Hausman's and Professor MacAvoy's figures are likely to overstate the benefits for several important additional reasons, beyond those discussed in Section A above.

1. Not All InterLATA Traffic Originates in BOC Regions

79. Professor Hausman assumes that BOC entry would bring about a price reduction of about 18% and applies this figure to *all* interLATA revenues from residential customers. But in 1995 only 77% of all interLATA minutes originated in BOC service areas (Schwartz Affidavit, ¶ 31). A BOC's impact on interLATA competition is likely to be far less outside its service regions, e.g., in regions served by other LECs such as GTE or SNET; moreover, the BOCs already are allowed to offer interLATA service originating out-of-region.[30] It is therefore inappropriate to extrapolate whatever interLATA price reduction one expects to emerge in a BOC's region—about 18% according to Hausman—also to regions served by non-BOC LECs. Making this correction would deflate Hausman's projected benefits to consumers by about one quarter—even assuming, counter factually, that his projected percentage price reduction in region is accurate.[31]

2. High-Volume Customers Already Enjoy Substantial Competition

80. Second, Professors Hausman and MacAvoy overestimate the scope of the likely price reduction in BOC regions. Even if BOC entry might plausibly yield price reductions of the order of

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[30] The fact that BOCs have made remarkably few attempts to enter out of region also casts doubt on claims by some BOC experts that interLATA markets are so hugely profitable today.

[31] It is certainly true that when evaluating the benefits from increased local competition made possible by a suitable § 271 entry standard one also should focus primarily on BOC regions, not on those served by other LECs. But my affidavit did not attempt to present quantitative estimates of such gains extrapolated to all regions, and therefore is not subject to the criticism that I too "over-counted" the benefits from local competition.

15% to *low-volume* residential customers that do not participate in IXCs' discount plans, the majority of interLATA *expenditures* are made by higher-volume customers who do participate in discount plans and for whom competition already is more intense. For example, AT&T already offers 10 cents/minute anytime, anywhere with a relatively low flat monthly fee.[32] High-volume residential customers subscribing to such plans are likely to see considerably smaller price reductions than those assumed by Professor Hausman.

3. Lessons from the Experiences of SNET and GTE

81. ***Extent of price reductions.*** The significant shares of interLATA residential customers migrating to SNET and GTE in their regions suggest the potential for welfare gains from BOC interLATA entry. However, the 17-18% average residential rate reductions predicted by Professor Hausman based on his interpretation of the SNET and GTE experiences overstates this potential substantially, for at least two reasons.[33]

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[32] A $25-$50/month residential customer on SNET's best rate plan pays 12 cents/minute for anytime, interstate calling. (The same SNET customer would have paid more in the January 1997 time frame used in Professor Hausman's affidavit because this favorable rate schedule was not available at the time.) An MCI customer with the same bill and "anytime" calling plan pattern also pays 12 cents/minute (less on Sundays); an AT&T customer between pays 11-13 cents/minute. For off-peak calling, Sprint's dime-a-minute rates beat SNET's rates for all but the largest residential customers (to whom SNET offers a dime-a-minute), and LCI's 9 cents/minute beats both of them.

[33] As explained shortly, even the price reductions projected based on the SNET record are exaggerated. However, Professor Hausman does not offer good support for his claims that GTE has priced competitively to the same degree as SNET. In fact, available evidence indicates that GTE has not priced aggressively against the major IXCs, but relied more on its in-region brand name recognition. For example, GTE's initial entry pricing strategy was simply to offer volume discounts of 10% off competitors' basic rates for bills of $10/month and 25% for bills of at least $25/month. (See Merill Lynch, Telecom Services - Long Distance, August 12, 1996.) These discounts are comparable to the volume discounts off basic rates that customers could already get from AT&T. GTE today has only two long distance rate plans: one is the flat rate of 14 cents/minute under Total Call, which is only one cent below AT&T's 15 cent flat rate, and is above AT&T's 10 cents flat rate and MCI's 12 cent flat rate available to users who meet some basic volume requirements or pay a monthly fee. The other is the Easy Savings plan, with discounts from AT&T's basic rate for customers with bills of at least $10/month and 25% for bills of at least $25/month. As noted, such customers can obtain similar discounts from AT&T.

82. First, Professor Hausman selectively focuses on certain relatively high-priced AT&T rate plans and fails to consider lower rate plans already offered by AT&T and other IXCs. These low rate plans should induce customers to migrate from the particular, relatively high-priced AT&T schedules that Professor Hausman selected for his LEC/AT&T rate comparison, even absent the availability of SNET or GTE interLATA service.[34] In fact, for the *off-peak* callers that make up the bulk of the residential market, SNET and GTE do *not* offer the best interLATA rates available in their respective territories, *for any customer calling volume*.[35] For *on-peak* calling, competing carriers also have lower rates than GTE *for most service levels*, while the comparison of their rates with those of SNET's is mixed.[36]

83. Second, although Hausman's submissions do not state how he weighted the rate schedules that he does compare, his 17-18% projected average price reduction appears to be based on initial average prices that are computed by weighting prices in discount and non-discount plans according to the number of customers in each. This ignores the fact that customers in discount plans tend to be the heavier users and account for a much higher share of both minutes and total expenditure.

84. This is not to deny that some SNET and GTE customers may well be enjoying better rates

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[34] In his submission in the present BellSouth proceeding, Professor Hausman does mention two of the more competitive standard AT&T calling plans. However: (a) he only compares the least favorable of these with SNET rates; (b) he makes the unrealistic assumption that the average call duration is only four minutes (thereby exaggerating the impact of SNET's shorter billing increments); and (c) he also applies discounts to the SNET rates that, according to SNET's customer representative, are not available on that schedule.

[35] As mentioned, GTE's best off-peak rate plan is a straight 14 cents/minute, anytime rate. For off-peak callers, AT&T, Sprint, and LCI all offer rates that beat GTE's by 30-35%. Sprint's and LCI's respective off-peak rates of 10 cents and 9 cents/minute dominate SNET's offers. (Sprint rebates a further 10% off the bill for customers spending at least $25/month who maintain service for a year.) AT&T's 10 cents per minute off-peak rate matches SNET's.

[36] MCI beats SNET's best on-peak offer for customers with lower calling volumes. Sprint's, AT&T's, and LCI's respective off-peak rates of 10 cents, 10 cents, and 9 cents/minute dominate SNET's offers. (Sprint rebates a further 10% of the bill for customers that maintain service for a year.) For customers using under $25 per month, MCI's 12 cents/ minute anytime beats SNET's 15 cents/minute anytime rate. At calling volumes over $50 per month, SNET's rates are the best of the major players' *standard* offers for callers with heavy on peak use, with the advantage around 10% at $50 per month; less at greater calling volumes. However, SNET's penetration at high calling volumes is disproportionately small, perhaps because of the competitive importance of IXCs' promotional calling plans offering very substantial additional savings at these calling volumes.

as a result of interLATA entry by these LECs. A likely benefit of in-region interLATA entry by the incumbent LEC is its marketing access to its broad customer base. Incumbent LECs that marketed attractive interLATA rates would over time win some customers from incumbent IXCs, improving these customers' welfare directly. Indirectly, such ILEC offers ultimately would be a factor in inducing incumbent IXCs to improve their own offers or speed up the penetration of their more attractive current calling plans among their customer base However, these effects are not measured well by Professor Hausman's comparisons; he does not distinguish the effect of ILEC entry from the effects of rate schedules already on the market.

85. ***Increased competition even absent BOC entry.*** Competition has been increasing in long-distance services to a significant extent even in the absence of BOC entry. AT&T's market share erosion has accelerated over the over the past 3 years as MCI, WorldCom, and particularly the smaller carriers have gained market share.[37] AT&T and its rivals have introduced residential rate plans that have reduced generally available rates.[38] Various Wall Street analysts refer to long-distance service as becoming increasingly a "commodity," and cite increased competitive pressures from resellers and smaller carriers.[39] Thus, it is misleading to argue that prices with BOC entry would be lower than without it by about 15-20% *in steady state*.[40] Rather, BOC entry would accelerate and

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37 See FCC "Long Distance Market Shares " Chart 2 and preceding tables, October 10 1997.

38 Nonpromotional plans available to all residential customers include *One Rate Plus* ($4.95 per month plus 10 cents/minute, anytime [AT&T]); *Simple Rate* (10 cents/minute, 7pm-7am, weekends; 25 cents/ minute, 7am-7pm [AT&T]); *MCI One Rate Plan* (12 cents/minute, anytime, for customers using more than $15 a month, and 15 cents/minute, anytime, for smaller customers; 5 cents/minute on Sundays for both type of customers); *Sprint Sense* (10 cents/minute, 7pm-7am, weekends; 25 cents/minute, 7am-7pm); *The LCI Difference* ($3 per month, waived if the bill is more than $15; 9 cents/minute, 7pm-7am, weekends; 15 cents/minute, 7am-7pm).

39 See, for example, Merrill Lynch, Telecom Services - Long Distance, 12 August, 1996.

40 For example, Professor MacAvoy lists "conservative" estimates of annual consumer benefits in Michigan of $0.4 billion ($1.9 billion for all of Ameritech's region) and puts the present value of this benefit stream at $5.5 billion ($23 billion for all region). This presumes that BOC entry gives a *permanent* increase in competition, as opposed to merely accelerating its evolution, as it presumes that consumers would get an additional $0.4 billion *each year* with Ameritech entry than without it (MacAvoy Michigan Reply Affidavit, July 2, 1997, p. 5).

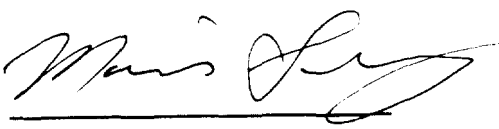
perhaps deepen the already intensifying competition. Barring consolidation, this competition would bring interLATA prices lower even without BOC entry. The added reduction in prices that hinges on BOC entry is therefore likely to diminish over time.

III. CONCLUSION

86. My purpose in this affidavit is not to engage in skirmishes over quantification of the exact benefits and costs of BOC entry, an exercise that I view as quite speculative. Rather, my purpose is twofold. First, I want to suggest—based on the analysis of Part I—that there is a broad range of plausible assumptions under which the gains from increased local competition will comfortably outweigh any likely loss due to delayed BOC interLATA entry. Second, I want to identify the numerous and serious exaggerations in some of the figures that have been touted.

87. The Section 271 entry authority is a key, if not the key, tool for prying open local markets. Therefore, it is also the key to ensuring that all providers are able to compete on an equal footing in offering integrated services that require the now-monopolized local inputs and services. The Department of Justice's Open Local Market Standard strikes a good balance between the costs and benefits of delaying BOC entry as needed to accomplish the competition goals of the Telecommunications Act, and is likely to accelerate considerably the development of competition in local and in integrated services compared with a more lax standard. It need not impose an onerous delay in BOC entry. And it ultimately will result in less intrusive regulation than would a policy that authorizes BOC entry prior to full implementation of the main new systems required for local competition and instead counts on regulators to disentangle the mess later.

I hereby swear, under penalty of perjury, that the foregoing is true to the best of my knoweledge and belief.



Marius Schwartz

Subscribed and worn before me this 3 day of Nov. 1997.

Notary Public

[illegible]

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EDUCATION

University of California, Los Angeles: Ph.D. in Economics, September 1982
University of California, Los Angeles: M.A. in Economics, March 1978
London School of Economics: B.Sc. in Economics (1st Class Honors), August 1976

PROFESSIONAL EXPERIENCE

Georgetown University, Department of Economics

Professor, June 1993–present
Associate Professor, August 1987–May 1993
Assistant Professor, January 1983–July 1987 (part time in Fall 1982)

Director of Graduate Studies: Spring 1993-Spring 1995

Undergraduate Courses Taught:

Antitrust
Industrial Organization
International Economics
Macroeconomic Theory
Mergers & Corporate Control
Microeconomic Principles
Topics in Competition and Regulation

Graduate Courses Taught:

Industrial Organization
Macroeconomic Theory I
Macroeconomic Theory II
Monetary Policy
Microeconomics: special course in Pew Freedom Fellows Program

Council of Economic Advisers, Executive Office of the President

Senior Economist, June 1995–May 1996 (part-time consultant April & May 1995 and June 1996).

Served as the senior economist principally responsible for antitrust, regulated industries, and other industrial organization matters. Work included: 1996 Telecommunications Act; competition in international satellite services; competition in the electric utility industry; reforming the patent and trademark office; intellectual property rights; international trade disputes; health care.

U.S. Department of Justice, Antitrust Division

Consultant, June 1996–present

Economist (part time), January 1983–May 1995
Economist (full time), October 1980–December 1982

Regulatory

Analyzed various competitive issues posed by Bell Company entry into long-distance telecommunications services and submitted affidavit to Federal Communications Commission on behalf of Justice Department.

Testimony

Presented expert testimony to courts in successful challenges of merger and of consent decree.

Mergers

Investigated mergers in several industries and helped to design appropriate relief.

Business Practices

Worked on vertical-restraints cases (tying, exclusive dealing, resale price maintenance, exclusive territorial arrangements) and horizontal-conduct cases (collusion and predation).

Legislation, Congressional Matters, Division Reports

Provided input to Antitrust Division's Merger Guidelines (1992) and Vertical Restraints Guidelines (1984). Helped draft Division comments on various Congressional legislation and responses to inquiries in several areas including price discrimination and dealer termination.

Cooperation with Foreign Competition Authorities

Interacted with competition officials from several countries and agencies. Helped comment on following documents: Canadian Fair Trade Commission's guidelines on predatory pricing, and on price discrimination; Japanese Fair Trade Commission's guidelines on distribution systems, on sole import distributorships, and on joint R&D; Korean Fair Trade Commission's guidelines on unfair trade practices in international agreements; OECD papers on predatory pricing, on competition policy and franchising, and on interaction between trade and competition policies.

Other Professional Experience

Senior Advisor, The Brattle Group, Economic, Environmental & Management Counsel, Cambridge, MA and Washington DC, November 1996-present.

OECD: Lecturer in Seminar on Vertical Restraints for competition officials from Czech Republic, Hungary, Poland, and Slovakia in Cracow, Poland, November 20-22, 1995.

Consultant in private antitrust and regulatory matters.

ILADES: Participated in designing and teaching a short course in industrial organization to policymakers and executives in Santiago, Chile, June 1994.

Pew Freedom Fellows Program: Taught short course in microeconomics to twenty Fellows from transition economies, annually, January 1993–present. (Fellows hold middle-level or upper-level positions in government and private business.)

Center for Economic Development, Slovakia: Academic Advisory Board.

World Bank: Consultant.

Abt Associates/USAID: Advised Government of Zimbabwe in Harare on formulating antitrust law, summer 1993 (consultant to Abt, work funded by USAID's Implementing Policy Change Project).

LANGUAGES

French, Hebrew, Romanian (speak and read all three fairly well; write French and Hebrew adequately)

HONORS

U.S. Department of Justice, Antitrust Division: Special Achievement Awards
Brookings Institution: Research Fellow, 1979-80
University of California, Los Angeles: Earhart Fellowship, 1977-78
University of California, Los Angeles: Regents Fellowship, 1976-77
London School of Economics: Premchand Prize in Monetary Economics, 1976

PUBLICATIONS

Refereed Journals

"A Quality-Signaling Rationale for Aftermarket Tying," *Antitrust Law Journal*, vol. 64 (Winter 1996): 387-404 (with Gregory J. Werden).

"The Non-Existence of Pairwise-Proof Equilibrium," *Economics Letters*, vol. 49 (1995): 251-259 (with R. Preston McAfee).

"Equity as a Call Option on Assets: Some Tests for Failed Banks," *Economics Letters*, vol. 48 (1995): 389-397 (with Behzad Diba and Chia-Hsiang Guo).

"Parallel Imports, Demand Dispersion, and International Price Discrimination," *Journal of International Economics*, vol. 37 (November 1994): 167-195 (with David Malueg).

"Opportunism in Multilateral Vertical Contracting: Nondiscrimination, Exclusivity, and Uniformity," *American Economic Review*, vol. 84 (March 1994): 210–230 (with R. Preston McAfee).

"Preemptive Investment, Toehold Entry, and the Mimicking Principle," *RAND Journal of Economics*, vol. 22 (Spring 1991): 1–13 (with David Malueg).

"Patent Protection through Discriminatory Exclusion of Imports," *Review of Industrial Organization*, vol. 6 (No. 3, 1991): 231–246.

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"Investments in Oligopoly: Welfare Effects and Tests for Predation," *Oxford Economic Papers*, vol. 41 (October 1989): 698-719.

"Entry Deterrence Externalities and Relative Firm Size," *International Journal of Industrial Organization*, vol. 6 (June 1988): 181-197 (with Michael Baumann).

"The Competitive Effects of Vertical Agreements: Comment," *American Economic Review*, vol. 77 (December 1987): 1063-1068.

"The Nature and Scope of Contestability Theory," *Oxford Economic Papers*, vol. 38 Supplement (November 1986): 37-57.
This issue of the journal was published in parallel as *Strategic Behavior and Industrial Competition*, Morris et al. Eds., Oxford University Press, 1986.

"The Perverse Effects of the Robinson-Patman Act," *Antitrust Bulletin*, vol. 31 (Fall 1986): 733-757.

"Divisionalization and Entry Deterrence," *Quarterly Journal of Economics*, vol. 101 (May 1986): 307-321 (with Earl Thompson).

"*Illinois Brick* and the Deterrence of Antitrust Violations," *Hastings Law Journal*, vol. 35 (March 1984): 629–668 (with Gregory Werden).

"Contestable Markets: An Uprising in the Theory of Industry Structure: Comment," *American Economic Review*, vol. 73 (June 1983): 488-490 (with Robert Reynolds).

Monographs, Book Reviews, and Other Publications

"Telecommunications Reform in the United States: Promises and Pitfalls," in Paul J.J. Welfens and George Yarrow, Eds., *Telecommunications and Energy in Systemic Transformation*, Heidelberg and New York: Springer, 1997.

"Protecting Intellectual Property by Excluding Infringing Imports: An Economist's View of Section 337 of the U.S. Tariff Act," *Patent World*, Issue 25 (September 1990): 29-35.

Review Essay of: Jean Tirole, The Theory of Industrial Organization, MIT Press, 1988. *Managerial and Decision Economics*, Vol. 11 (May 1990): 131-139.

Book Review of: J. Stiglitz and F. Mathewson eds., New Developments in the Analysis of Market Structure, MIT Press, 1988. *Journal of Economic Literature*, Vol. 36 (March 1988): 133-135.

"Vertical Restraints," published in German by *Forschungsinstitut fur Wirtschaftsverfassung und Wettbewer* by E.V. Koln, Heft 5, 1984.

DISCUSSION PAPERS AND WORK IN PROGRESS

"Towards Competition in International Satellite Services: Rethinking the Role of INTELSAT," paper distributed at OECD Ad Hoc Meeting of Experts on Competition in Satellite Services, Paris, June 1995 (with Joseph E. Stiglitz and Eric Wolff).

"Competitive Markets in Generation: Economic Theory and Public Policy," paper presented at conference on "Electric Utility Restructuring: Whither Competition?" organized by International Association for Energy Economics Los Angeles Chapter, and Micronomics Inc., Los Angeles, May 1995.

"Exclusive Dealing for Rent Extraction," mimeo, January 1994 (with Serge Moresi and Francis O'Toole).

"Option Values of Deposit Insurance and Market Values of Net Worth: Some Evidence for U.S.Banks," mimeo, December, 1992 (with Behzad Diba and Chia-Hsiang Guo).

"Do Sunk Costs Discourage or Encourage Collusion?" U.S. Department of Justice, Antitrust Division, EPO Discussion Paper 85-10 (September 1985).

"Signalling Equilibria Based on Sensible Beliefs: Limit Pricing Under Incomplete Information," U.S. Department of Justice, Antitrust Division, EPO Discussion Paper 84-4 (May 1984) (with Maxim Engers).

OTHER SCHOLARLY ACTIVITIES

Seminars Presented

Bellcore
Bureau of Competition Policy, Industry Canada
California State University, Hayward
Columbia University
ENSAE, Paris
Federal Trade Commission
Georgetown University
George Washington University
International Trade Commission
Johns Hopkins University
New York University
Pennsylvania State University
Simon Fraser University
Tulane University
U.S. Department of Justice
University of Alberta
University of British Columbia
University of Calgary
University of California, Davis
University of California, Los Angeles
University of Maryland
University of Montreal
University of Pennsylvania
University of Toronto
University of Virginia

Conferences: Speaker or Discussant

Economics of Interconnection Forum, Federal Communications Commission, Washington DC, May 1996
Authors' Symposium on Competition Policy and Intellectual Property Rights, Canadian Bureau of Competition, Aylmer, Quebec, May 1996
Electric Generation Association, Annual Meetings, West Palm Beach, April 1996
"Wheeling & Dealing: Opportunities and Challenges in the New Electric Industry," conference sponsored by the Center for Regulatory Studies, Illinois State University and the Institute of Government and Public Affairs, University of Illinois- Urbana, Chicago, April 1996
"New Social and Economic Approaches to a Multimedia World," OECD Symposium, Tokyo, March 1996
"Telecommunications and Energy Regulation in Transition Economies," Center for Economic Development, Bratislava, October 1995
"Electric Utility Restructuring: Whither Competition?" organized by International Association for Energy Economics Los Angeles Chapter, and Micronomics Inc., Los Angeles, May 1995.

"New Learning on Barriers to Entry in Competition Policy," Canadian Bureau of Competition, Ottawa, March 1995
Southeastern Economic Theory Meetings, Charlottesville, October 1994
EARIE Conference, Tel Aviv, September 1993
Midwest International Economics Meetings, Pittsburgh, October 1992
Latin American Econometric Society, Mexico City, September 1992
Conference on Industrial Organization, Carleton University, Ottawa, July 1991
Workshop on Strategic and Dynamic Aspects of International Trade, SUNY at Stony Brook, July 1991
AEI Conference on "Innovation, Intellectual Property and World Competition," Washington DC, September 1990
EARIE Conference, Lisbon, September 1990
Conference on "International Trade and Technology," Brussels and London, November 1989
EARIE Conference, Budapest, August 1989
Conference on Strategy and Market Structure, Dundee University, Dundee, August 1988
Conference on "Firm Ownership and Competition," Graduate School of Business, Stanford University, June 1987
EARIE Conference, Berlin, August 1986
AEA Annual Meetings, Dallas, December 1984

Referee for Professional Journals

American Economic Review
Canadian Journal of Economics
Economica
Economic Journal
International Economic Review
International Journal of Industrial Organization
Journal of Business
Journal of Business Economics
Journal of Economic Dynamics and Control
Journal of Economic Theory
Journal of Economics and Management Strategy
Journal of Industrial Economics
Journal of Political Economy
Managerial and Decision Economics
Quarterly Journal of Economics
Quarterly Review of Economics and Business
RAND Journal of Economics
Review of Industrial Organization
Review of International Economics
Scandinavian Journal of Economics

Outside Evaluator--Research Proposals and Tenure & Promotion Cases

National Science Foundation
Small Business Administration
Several economics departments (identities disclosed on request)

EXHIBIT 3

Affidavit of
Michael J. Friduss - South Carolina
on Behalf of the
U. S. Department of Justice

AFFIDAVIT OF MICHAEL J. FRIDUSS
ON BEHALF OF THE
U.S. DEPARTMENT OF JUSTICE

I. PROFESSIONAL BACKGROUND

1. My name is Michael J. Friduss. My business address is 1555 Museum Drive, Highland Park, IL 60035. I am an independent consultant working with C.A. Hempfling & Associates, Inc., under contract with the Antitrust Division of the United States Department of Justice.

2. I received a Bachelor of Science degree in Industrial Engineering from the Illinois Institute of Technology in 1964 and a Masters degree in Management from Northwestern University in 1971.

3. I began my telecommunications career in 1964 as a Management Assistant for Illinois Bell Telephone Company ("Illinois Bell"). In this capacity, I filled a variety of non-management and management positions designed to familiarize me with all departments of the company.

4. From 1966 to 1969, I was a Manager in Illinois Bell's Plant Department. In this capacity, I supervised installation or repair operations in three different territories on the South side of Chicago.

5. In 1969, I was promoted to District Engineering Manager, responsible for the engineering and design of outside plant, also on Chicago's South side. In 1970, I was appointed District Plant Manager, responsible for installation and repair activities in Chicago's Hyde Park area. During my tenure in Hyde Park, I also headed an Operation Review team that assessed the quality and cost performance of each district in Chicago Operations.

6. I was promoted to Division Manager–Corporate Planning at AT&T in New York in 1973 and served through 1975. In this capacity, I headed a small group responsible for the study of the telecommunications interexchange industry at that time and what AT&T's future strategy should be in that segment of the industry.

7. In 1975, I returned to Illinois Bell as Division Plant Manager, responsible for installations and repair in the South suburban area. In 1978, I was named Division Manager–Corporate Planning for the company, responsible for Illinois Bell's planning and operations budgeting,

including operations planning for the implementation of the FCC's Computer Inquiry II and divestiture.

8. In 1983, I was promoted to General Manager–Distribution Services, responsible for Illinois Bell's outside operations, construction, and engineering. In this capacity, I supervised 7,000 employees and a budget of $500 million.

9. In 1986, I was promoted to Vice President–Personnel and Support Services for Michigan Bell and in 1989 was named Vice President–Customer Sales and Service for the same company. In the latter role, I was chief operating officer of a company and a member of the Board of Directors, with responsibility for operations and sales, including 11,000 employees and expenditures in excess of $1 billion.

10. In 1992, I returned to Ameritech Services as Vice President–Customer Service and Information Technology, responsible for the strategic and tactical direction of Ameritech's customer service and operations, as well as planning, building, and maintaining high quality and efficient computer systems (chief information officer). I retired from this position in 1993.

11. In late 1993, I formed MJ Friduss & Associates, consultants to the telecommunications industry. Our clients are carriers, primarily current and new local service providers, and small to medium-sized companies that provide hardware, software, and operating systems to those service providers. We are currently working with a number of firms in the areas of strategic planning, marketing, operations, customer services, and supplier management.

12. Additionally, I am Editor of the Friduss Report, a newsletter focused on carrier procurement processes.

II. SCOPE OF ASSIGNMENT

13. I have been asked by the Antitrust Division of the United States Department of Justice for my opinion regarding the appropriateness and comprehensiveness of the performance measures BellSouth proposes to provide to competitors and regulators. In particular, I have been asked whether these performance measures will reasonably depict the performance of wholesale functions BellSouth is obligated to perform pursuant to the competitive checklist of section 271 of the

Communications Act of 1934 (as amended by the Telecommunications Act of 1996) and whether such measures will enable competitors and regulators to determine both the adequacy of BellSouth's performance and the parity of such performance when compared to BellSouth's retail operation.

14. The primary source upon which I relied for my analysis is BellSouth's section 271 application for South Carolina. I generally reviewed the application for any discussion of performance measures. Additionally, I have reviewed:

- The FCC's Quality of Service report, which summarizes quality of service based on data submitted by the Bell Operating Companies (BOCs), GTE, and Sprint.
- BellSouth's application, including a Statement of Generally Available Terms (SGAT), before the South Carolina Public Service Commission (SCPSC) to provide interLATA telephone service in South Carolina.
- Testimony before the SCPSC related to BellSouth's application for entry into the interLATA toll market in South Carolina.
- The Telecommunications Act of 1996 (1996 Act).
- Interconnection agreements between the BOC and competitive local exchange carriers (CLECs) in South Carolina.
- Performance measure proposals by other BOCs, as well as proposals by several CLECs.
- The LCI/Comptel Petition for Expedited Rulemaking to Establish Reporting Requirements and Performance and Technical Standards for Operations Support Systems.
- My affidavit in connection with SBC Communication's Section 271 application for Oklahoma.
- The FCC's Opinion and Order on Ameritech's Section 271 application for Michigan.

15. I have also attended meetings with BellSouth and several CLECs interconnecting with or negotiating to interconnect with BellSouth.

16. Additionally, I have reviewed performance measures proposed by other BOCs in various proceedings in other states.

17. Finally, in reviewing BellSouth's proposals, I have drawn upon my significant experience with quality performance standards. As a telephone company line manager and officer, my performance was judged, in part, by how well I met customer service objectives. Further, as a staff manager, I had responsibility for the development and implementation of quality performance standards.

III. PERFORMANCE MEASURES AND THEIR ROLE

18. The 1996 Act obligates incumbent local exchange carriers (ILECs), and thus BOCs, to provide requesting carriers with interconnection, access to unbundled network elements, and resale services. In fulfilling these obligations, BOCs will perform a variety of wholesale functions for competitors, many of which BOCs also perform in providing retail services. Some of these functions, however, will be new.

19. The ability to detect discrimination in the performance of these functions is dependent on the establishment of performance measures that will allow competitors and regulators to measure BOC performance. Thus, the development of appropriate measures is critical to establishing that the local market is a level playing field in the context of the 1996 Act. Further, on an ongoing basis, the measures must be able to assure that the local market remains open and that any BOC backsliding will be detected.

20. Performance measures, then, serve as criteria for indicating performance, including the performance of wholesale functions. Performance measures enable competitors and regulators to compare a BOC's performance of a function with that provided to a BOC's retail customer or make an assessment of such function in the abstract. For example, to measure how well a BOC performs the functions of provisioning resold local service, we can define a performance measure–"average service provisioning interval"–and use it to describe the BOC's performance and to compare it to the BOC's retail performance of the same function. In general, performance measures are used to determine quality, measuring how long an activity takes to complete (cycle time) and how well the activity is performed (reliability).

21. A performance measure may include an objective or target, such as the cycle-time measure "five days to complete an order," where overall the measure is a percentage of orders meeting or not meeting the target. A performance measure can also encompass a raw time interval, such as the average number of days to complete resale orders. In neither case, however, does the outcome of the measure–the percentage or cycle time–itself indicate "good" performance or "bad" performance. Thus, performance measures themselves are not the barometers of performance, but rather the yardsticks with which to measure such performance. Accordingly, my review is limited to the sufficiency of BellSouth's performance measures rather than the sufficiency of its performance.

22. The most competitively significant, and thus the highest-priority performance measures should be those that describe the end-to-end quality of service from the *customer's* viewpoint. Studies over the years have identified performance measures that correlate highly with the customer's perceptions of service quality, such as the percentage of repeat reports of trouble, while others have a lower correlation.

23. Finally, while performance measures are generally easy to identify, there is no universally accepted definition of what a measure proposes to reveal or specifically how to gather the necessary data that comprises the measure. For example, cycle-time performance measures are dependent on the specific definition of start and stop times, while reliability measures are dependant on the specific definition of what constitutes a failure. This affidavit does not attempt to specify these definitions. However, it is critical that BellSouth and interconnecting CLECs do so to ensure useful results. I have assumed that all parties will commit to reporting results that reflect the spirit, as well as the paper definition, of a performance measure. For example, in measuring the level of missed appointments, the result should be measured against the customer-requested due date; due date changes should only be considered where explicitly requested by the end user or explicitly agreed to by BellSouth and a CLEC.

24. As is discussed more fully below, my review of BellSouth's proposed performance measures includes an assessment of (1) the scope of the functions measured; (2) the specific definitions of the measures; (3) the value and applicability of the measures through the appropriate

disaggregation of functions, markets, and products; (4) the stability of the measures; (5) the scaleability of the measures; and (6) whether the proposed measures will allow CLECs and regulators to compare BellSouth's wholesale and retail performance of the functions measured.

A. BOC PERFORMANCE MEASURES TO DATE

25. Over the past 120 years, telephone companies have developed extensive measures of customer service. These performance measures have generally served two purposes: (1) to allow for the comparison of performance between managers, territories, organizations, and companies, and (2) to provide regulators with indicators of potential problems. These measures cover all areas of customer-affecting performance, including customer care, provisioning, repair, billing, and network maintenance. Regulatory requirements notwithstanding, these performance measures comprise a key indicator of management success. Objectives are set, data is gathered, reports are published, and results become part of the corporate, organizational, and individual success determination.

26. Using performance measures, most state public utility commissions require achievement of certain *levels* or standards of performance for customer service. For example, the SCPSC requires results reported for the following:

- Trouble reports per hundred access lines
- Customer out of service trouble clearing times
- Held orders over 30 days
- Percentage of service orders for installations and reinstallations completed within five working days.
- Percentage commitments fulfilled (missed appointments)
- Trunk failure rates
- Loop transmission measures:
    - DC line current
    - Circuit loss
    - Circuit noise
    - Power influence

- Balance
- Dialtone delay
- Toll and operator assistance call answer time
- Repair service answer time

27. The FCC requires the BOCs, GTE, and Sprint to submit quality-of-service data that is summarized annually in a report entitled "Quality of Service for the Local Operating Companies Aggregated to the Holding Company Level." Without specifying particular levels, the report includes the following performance measures:

- Percent of installation appointments met
- Average missed installation in days
- Average repair interval
- Initial trouble reports per 1000 access lines
- Troubles found per 1000 access lines
- Repeat trouble as a percent of initial trouble reports
- Complaints per million access lines
- Switches with downtime
- Average switch downtime in seconds per switch
- Unscheduled downtime over 2 minutes per occurrence
- Scheduled downtime over 2 minutes per occurrence
- Trunk groups with blocking as a percent of total trunk groups

28. Thus, to date local exchange providers have reported on a significant list of measures of their retail performance. Given the new wholesale role imposed on ILECs by the 1996 Act and the many new functions to be performed in that role, some *new* performance measures will be required to both accurately describe existing performance and depict performance of new functions.

B. PARITY VERSUS ADEQUACY PERFORMANCE MEASURES

29. Under the wholesale/retail model imposed on ILECs by the 1996 Act, there are two categories of measurements used to depict ILEC performance of a particular function: parity

performance measurements and adequacy performance measurements. When a BOC's performance of certain functions for its retail units or "end user" customers is identical or analogous to the performance of those functions for competitors or their customers, parity performance measures apply. Parity performance measures are used to juxtapose performance results, such as comparing trouble report rates of a BOC's customers with those of a competitor's customers. Thus, parity performance measures are used for "apples-to-apples" comparisons and are most often applied in the resale environment, where the functions a BOC performs for a competitor's customers are almost identical to those performed for its own retail customers.

30. In contrast, adequacy performance measures facilitate the establishment of an objective or target pertaining to functions a BOC either (1) performs only for competitors, or (2) performs for competitors in a manner sufficiently different from that performed for the BOC itself such that a comparison is meaningless or unhelpful. Thus, adequacy performance measures apply in "apples-to-oranges" comparisons and facilitate a determination of whether CLECs are afforded a meaningful opportunity to compete. Adequacy measures apply primarily in the UNE environment.

C. MARKET AND PRODUCT DISAGGREGATION OF PARITY PERFORMANCE MEASURES

31. Meaningful determinations of parity performance require "apples-to-apples" comparisons of the functions performed by a BOC. Where, for example, the same function is performed by different personnel, with different facilities, or for different customer classes or products, more refined comparisons are required. Thus, for example, the function of installing POTS service for consumer and business customers may be identical, but because business customers may be more sensitive to installation delays, a meaningful comparison may require juxtaposition of only business customer installation intervals.

32. There are two general categories of such further disaggregation. First, market parity refers to equality between appropriate customer groups. Customer groups may be broken out geographically or by class of service. Geographic market parity means comparing CLEC results to BOC results within the geography the CLEC has chosen to offer service. For example, if a CLEC

offers resale service only in city A, a meaningful comparison may require the BOC to provide their retail results only for city A.

33. Class of service market parity means comparing CLEC results to BOC results within the classes of service the CLEC has chosen to offer. For example, if a CLEC offers service to small-business end users only, for purposes of comparison a BOC may have to provide its retail results for such small-business users.

34. A second category of disaggregation is product parity. Where the provision of different products to the same or different customer group requires use of different facilities, personnel, and so forth, meaningful parity comparisons may require disaggregation of performance results by the products offered by a CLEC. Product groups may further be broken out both by wholesale category and by specific products offered to end users. Wholesale categories include resale, UNE (possibly further broken out by loop-only, UNE combinations, and so forth), and facilities-based. Performance measures are required for each wholesale category. Specific products offered to end users include POTS, HICAP, Subrate, ISDN, or Centrex. For example, if a CLEC chooses to offer ISDN, a BOC could provide performance measurements that would allow for a comparison with their own ISDN retail product.

D. REPORTING REQUIREMENTS

35. Once appropriate performance measures have been agreed to and the data gathered, the results must be formatted into reports and provided to CLECs and regulators. My review will include proposed report formats, report frequency, the appropriateness of result comparisons, report accuracy and completeness, and the availability of raw data.

36. Report format relates to how performance measure results are presented. Are they presented in tabular or graphical form? Are they readable and understandable? Can a CLEC or regulator determine whether parity has been achieved? Report frequency relates to how often reports will be provided. Report accuracy and completeness relate to the statistical validity of the proposed data. Appropriateness of result comparisons relates to the entities for which the data will be provided: BOC retail? BOC subsidiaries? the CLEC? all CLECs? other?

IV. OVERVIEW OF BOC WHOLESALE FUNCTIONS

37. It is helpful to divide the functions BOCs will perform for CLECs under the 1996 Act into five primary categories: pre-ordering, ordering, provisioning, maintenance and repair, and billing functions. These categories describe the spectrum of functions through which CLECs acquire new customers, maintain facilities for them, and bill them. Within each category, performance measures identify the cycle time and reliability of each function. Performance parity is achieved if CLEC resale customers enjoy cycle time and reliability of functions equivalent to that experienced by the BOC's customers or its affiliates' customers. Performance adequacy is achieved if, for example, through the provision of network elements, CLECs are afforded a meaningful opportunity to compete.

38. Pre-ordering describes the initial process of a CLEC or BOC customer service representative obtaining information to place an order for new, additional, or changed service. Pre-order cycle-time performance measures generally refer to the reliability and response times of operations support systems (OSSs) that allow the representative to complete the service order with the customer on the line. Pre-order reliability performance measures refer to the accuracy and completeness of the data received. These pre-ordering functions are generally visible to the end user.

39. Ordering describes the process of the service representative transmitting the service order into the BOC's OSSs for facility assignment, database updates, switch updates, and dispatch of a technician, if required. For a CLEC, this includes successfully moving the service order across an agreed-upon interface into the BOC's OSSs. Ordering cycle-time performance measures refer to BOC response times for notices of order confirmation, jeopardy, or rejection. Ordering reliability performance measures refer to the accuracy and completeness of these notices, as well as the percentage of rejected orders. Ordering performance measures also address the percentage of service orders that "flow-through" from a service representative to completion if no technician dispatch is required or to the point of dispatch if dispatch is required. OSS availability and BOC service center answer time performance measures may also be considered to be part of the ordering process. Ordering is generally transparent to end users.